Toward a Risk Assessment of Perfluoroalkyl Acids (PFAA)

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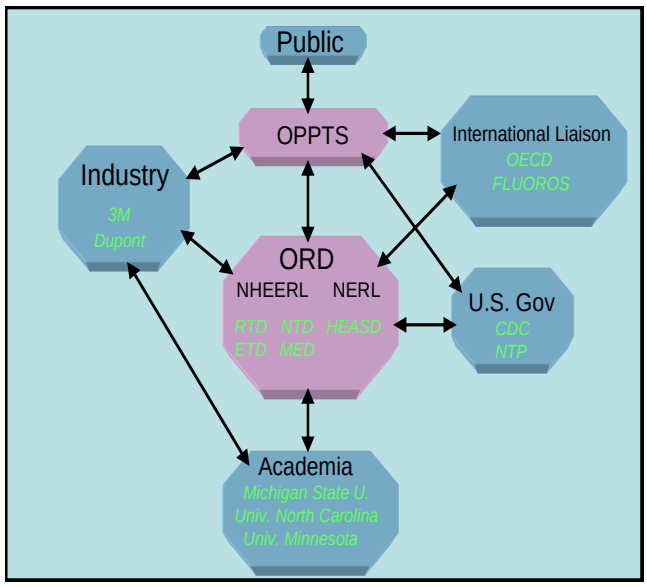
PFAA

• Are man-made, stable, fully fluorinated organic chemicals with surfactant properties.
• Have wide consumer and industrial applications, with the C-8 compounds (perfluorooctanoic acid, PFOA; perfluorooctane sulfonate, PFOS) being most commonly used.

Are objects of concern because

• They persist and bio-accumulation in the environment.
• PFOS and PFOA are detected in humans and wildlife with global distribution, and long estimated biological half-lives.
•They have toxic effects in laboratory animals.

Partnership to address risk assessment issues



Recent Activities

2003
• Publication of findings on PFOS developmental toxicity in rodents
• IRIS document on adverse health effects of PFOS.
• Preliminary risk assessment of PFOA developmental toxicity
• Collaborative studies with 3M to detect PFOS in animal studies.

2004
• Developed detection methods for PFOA in biological and environmental samples.
• Workshop co-sponsored by RTD/NHEERL, OPPT/OPPTS, and 3M on environmental trace analysis of PFAA.
• Organized workshop with 3M and academic researchers to explore mechanisms of PFOS toxicity.

2005
• NHEERL multi-year research implementation plan for PFAA.
• Draft risk assessment of PFOA reviewed by SAB.

EPA Accomplishments

• Provided hazard characterization of PFOS for OECD document.
• Nominated PFOS and PFOA for CDC's NHANES to provide reliable bio-monitoring of these chemicals in the U.S. population. First report will be available in 2007.
• Nominated PFAA for evaluation by NTP. Collaborative research will be launched in 2006.
• Provided preliminary risk assessment of PFOA, which was recently reviewed by SAB. Research plans have been developed to address SAB's concerns and recommendations.
• Organized and sponsored several national and international workshops and symposia to promote uniform methods and standards for detection of PFAA in the environment, improve risk assessment models for PFOA, and promote the investigation of mechanisms of PFAA toxicity.
• IRIS assessments for PFOS and PFOA are underway.

Future Plans

• Expand and strengthen EPA's partnerships with stake-holders: CDC, NTP, industries and academia.
• Implement research program to evaluate mechanisms of cancer and non-cancer related effects of PFAA, focusing on mechanisms of carcinogenesis, developmental toxicity, immunotoxicity, neurotoxicity and endocrine disrupting effects of PFOA and PFOS.
• Extend hazard identification of PFAA beyond the C-8 compounds.
• Use toxicogenomic and computational toxicology approaches to elucidate the mechanisms of PFAA toxicity.
• Prepare OECD hazard assessment of PFOA.

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